R E P O R T R E S U M E S

ED 011 392 CG 000 088

CRITERIA ON STUDENT DEVELOPMENT.

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PUB DATE 21 MAR 67

EDRS PRICE MF-$0.09 HC-$0.52 13P.

DESCRIPTORS- *STUDENT DEVELOPMENT, *STUDENT COLLEGE RELATIONSHIP, COLLEGE STUDENTS, *MEASUREMENT TECHNIQUES, *EDUCATIONAL OBJECTIVES, HIGHER EDUCATION, *RESEARCH CRITERIA, STUDENT BEHAVIOR, DALLAS

THE AUTHOR STATES THAT DETERMINING THE CRITERIA RELEVANT TO THE EDUCATION PROCESS IS EQUIVALENT TO DEFINING OBJECTIVES OF HIGHER EDUCATION. THE TRADITIONAL APPROACH TO DEFINING CRITERIA HAS BEEN TO SPECIFY FROM CONCEPTUAL CRITERIA (EDUCATIONAL OBJECTIVES), THE CRITERION PERFORMANCE. AN IMPROVED APPROACH USES A CLASSIFICATION SCHEME TO ORGANIZE THE GLOBAL CONTENT OF ABSTRACT STATEMENTS OF EDUCATIONAL GOALS INTO AREAS OF RESEARCH INTEREST SO THAT CRITERION PERFORMANCES CAN BE SPECIFIED WITHIN THE CONTEXT OF A PARTICULAR STUDY OF RESEARCH PROGRAMS. A SIMPLE EXAMPLE OF SUCH A CLASSIFICATION WOULD INCLUDE COGNITIVE OUTCOMES SUCH AS STUDENTS' KNOWLEDGE AND AFFECTIVE OUTCOMES SUCH AS MOTIVATION AND VALUES. THE CRITERION DEFINITION SHOULD MAKE SENSE WITH REGARD TO THE PROBLEM BEING INVESTIGATED AND TO THE POSSIBLE APPLICATIONS OF THE FINDINGS. THE AUTHOR FURTHER STATES THAT ALL RESEARCH PROGRAMS SHOULD BE FLEXIBLE ENOUGH TO INCLUDE, IF NECESSARY, EDUCATIONAL OUTCOMES NOT CONSIDERED IN THE ORIGINAL DESIGN. TWO-BY-TWO CLASSIFICATION OF A FRESHMAN INPUT SURVEY INCLUDED--(1) ASSESSMENT OF INTELLECTUAL OUTCOMES SUCH AS GRADE POINT AVERAGES, (2) EVALUATION OF CHANGES IN THE AREAS OF STUDENT VALUES, ATTITUDES, AND PERSONALITY, (3) THE PROCESS OF VOCATIONAL CHOICE, AND (4) LASTING OUTCOMES OF STUDENT BEHAVIOR. THIS PAPER WAS PRESENTED AT THE SYMPOSIUM, "IMPLICATIONS OF A PROGRAM OF RESEARCH ON STUDENT DEVELOPMENT IN HIGHER EDUCATION," AMERICAN PERSONNEL AND GUIDANCE ASSOCIATION MEETINGS (DALLAS, MARCH 21, 1967). (FS)

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Criteria on Student Development*

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ED011392

*Presented as part of a symposium, Implications of a Program of Research on Student Development in Higher Education, American Personnel and Guidance Association Meetings, Dallas, Texas, March 21, 1967.

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A basic concern of any research program concerned with the outcomes of higher education is to assess student behaviors that are relevant to the goals of the educational enterprise and to relate these observations to the environmental influences that characterize the educational intervention. Since this area of concern involves extensive (and expensive) longitudinal research, there have been few studies of a comprehensive and representative nature. In addition, there are a number of difficult problems in the general area which remain largely unsolved. These larger problems can be subsumed under three broad--but clearly not independent--categories. First, there is the problem of definition. What are the relevant criteria? Second, there is the question of measurement. What observations of student behavior, in what social context, best elicit the relevant data? Third, there is the problem of research design. What methodology of inferential procedures will most adequately organize and display the interrelations among the original observations in an intellectually satisfying and objectively convincing manner?

The more difficult problems of design and methodology--with regard to their bearing on the Council's research program--have been discussed elsewhere (Astin, Panos, and Creager, 1966). The problem of definition is somewhat less difficult because, being primarily analytical, it is more speculative than it is real. For this reason, the major focus of this paper will be at least correspondingly hypothetical.

Asking which criteria are relevant to the process of education is equivalent to asking what are the objectives of higher education. More specifically, what are the particular student behaviors that the various educational interventions are intended to influence? However, going from "relevant criteria" to the "objectives of higher education" is by no means a simplifying reduction. There are at least two approaches one can utilize in attempting to come to grips with this definitional problem. One way is to specify, from the statement of an educational objective, the operational (that is, the behavioral) manifestations of the outcome of interest and the social context in which that behavior is supposed to occur. This statement and specification of the objective is the conceptual criterion (Astin, 1964). A criterion performance, then, can be conceived as any transactional event between an individual and his environment that is judged to be relevant to the conceptual criterion. Observations of the criterion performance, of themselves or after statistical manipulation, become criterion measures. This, of course, is the traditional evaluation process.

Educational objectives, however, because they are derived from a heterogeneous variety of sources--for example, administrators, teachers, students, and subject-matter specialists-- and because they develop gradually, are initially poorly defined and sometimes apparently contradictory. Unfortunately, they usually remain that way. Thus, although the ideal source for ascertaining the relevant criteria of an educational intervention would be to determine them from statements of educational objectives, these statements--taken at the level of the system of higher education--are too global and abstract to function as a source of viable conceptual criteria.

The fact is that educational goals, as presented in college catalogs for example, consist largely of superficial and essentially nonfunctional statements about the development of students who value the "intellectual" way of life and the like. Although it is obvious that most persons would agree that such goals are relevant and desirable, it is also obvious that the words in such statements connote different meanings to different individuals. The task of translating such nonfunctional statements into conceptual criteria, that is, into specifiable operations, is very nearly impossible. We believe that effort in this area is better devoted to obtaining a clear picture of what is actually happening to the students. Perhaps, when we have been able to discover and adequately document what the outcomes of college are, we can wonder about whether or not we like what they are and what we can or cannot do about them.

This brings us to a second approach for specifying the outcomes of higher education. In this approach, the global content of abstract statements of educational goals are arrayed under similarly global and abstract labels into areas of research interest. Utilizing such a classification scheme, it is then possible to specify criterion performances within the context of a particular study or research program. Figure 1 displays the results of one such attempt to sort out relevant sources of criteria on student development in terms of a simple 2 x 2 classification.

In Figure 1, the so-called behavioral domain has been divided into the now traditional categories of cognitive or intellective outcomes, and nonintellective or affective outcomes. The cognitive domain includes such outcomes as the student's knowledge, abilities, and intelligence, while affective outcomes include his motivation, values, and attitudes.

Criterion measures can be characterized according to their source into those observations which, in themselves, are in the form of measures, and observations that imply a measure of some hypothetical latent (psychological) construct. Empirically verifiable or observable outcomes include such measures as whether or not a student obtained a terminal degree and at what level, his extracurricular achievements and awards, and certain aspects of his overt behavior toward his fellow man. Measures of nonobservable outcomes, which can only be inferred and on which an individual's position on an hypothetical latent continuum can only be estimated, include such personality "traits" as intelligence, values, and attitudes. The crucial methodological differentiation in this classification is between directly observable events and outcomes which are not completely revealed by any set of observable indicators.

Although this second approach apparently ignores important potential interactions--for example, between the cognitive and affective domains, or between an individual's aptitude, values, interpersonal relations, and attained achievements--the classification is not intended as a representation of reality, but rather as an heuristic tool. Its function is to force us to recognize explicitly those criteria that we have included as part of our research design, and--perhaps more importantly--to recognize potentially relevant behavioral outcomes that the design has excluded, or that at least are not being explicitly dealt with in a particular study or research program.

It is essential to note that regardless of their source, conceptual criteria (educational objectives) are not subject to empirical verification

or tests. They are rational statements of desired behavioral or social outcomes. In short, conceptual criteria are representations of normative assumptions about the nature of man, the nature of knowledge, and the nature of reality. Thus, educational criteria can be accepted or rejected only on rational grounds. Furthermore, the relevance or lack of relevance of the designated criterion performance is similarly judgmental; that is, relevance is not empirically testable.

It should be clear from the preceding discussion that, in our view, criteria cannot be empirically validated. Thus, the only method for judging the relevance of a criterion measure to an educational outcome is on the basis of a rational analysis. The point, of course, is that the consumer or potential user of the findings of any reasearch that has implications for educational practice has a special responsibility not only to scrutinize the research design and methodology that produced the findings, but also to determine the relevance of the educational outcome, as defined in the research, to his immediate concerns. In other words, the criterion definition should make sense with regard both to the problem being investigated and to the possible applications of the findings.

Because of the time needed for the conduct of most educational research, it is important that the design of research projects attempt to incorporate those educational objectives that are relevant to the ongoing educational process, and that the research program be flexible enough to include, at any subsequent stage, educational outcomes that are not being considered in the original design. In this regard, collaboration and communication among all persons interested in the study of higher education

would seem more crucial during these early planning stages, but is clearly necessary throughout the conduct of the research.

Obviously, the problem of which student outcomes are relevant to the goals of higher education and how they can best be evaluated is far from being solved. It is just as obvious that general and abstract discussions (such as this one), while they may be useful, will not solve the problem. It might be useful, however, to briefly indicate the types of items we have included in our freshmen input surveys in an attempt to define a reference point in time to which the subsequent behavior of the student can be related.

In the box labeled A in Figure 1, we have collected student input data relevant to assessing such outcomes as overall college grade point average, grade point average in major field of study, and subsequent achievement test performances such as performance on the area tests of the Graduate Record Examination. Although the prediction of these kinds of intellective outcomes has a history of more than fifty years of research, the predictability of academic achievement remains at a level far less than that theoretically attainable.

In the box labeled B, we hope to evaluate changes in the areas of student values, attitudes, personality, and educational aspirations. We have already collected input information concerning the student's self-concept through a trait self-rating technique, and information concerning his values-orientation through a rating scale of life goals. We have attempted to include in these instruments items that can be conceptually referred to interpersonal and noninterpersonal behaviors. By repeating these items

in follow-up studies, we will be able to evaluate changes over time and to relate these observations to the college experience. In the area of attitudes, we have included input items in the freshmen survey that will permit us to study how the college environment shapes the student's perception of and attitude toward his college.

In box C, we hope to shed some light on the process of vocational choice. For example, Astin (1965)--based on a theory of selective environmental reinforcement--has suggested the hypothesis that an individual's development during college may be largely determined by the types of interpersonal peer relationships available to him on the campus. Thus, the student's career choice tends to shift in the direction of the dominant or modal choice of his fellow students. We also hope to evaluate outcomes such as relatively high-level extracurricular achievements including awards in the arts and sciences, level of final degree attained, and the personal and environmental factors that are associated with persistence in college including the later vocational development of the dropout.

Box D presents the most difficult problem because it is here that outcomes of a lasting nature or relatively permanent changes in the student's behavior vis-a-vis society at large are arrayed. That is, these types of outcomes are usually not manifest in the individual's behavior until well after he has left college. We have included a large array of input items in the freshmen survey for a controlled evaluation of what may be called day-to-day interpersonal and noninterpersonal behaviors. Although some of these items--such as gambled, drank beer, participated in organized demonstrations, smoked cigarettes, or, for that matter, prayed--may not

be the kinds of behavior a college curriculum is explicitly attempting to influence, they are, nevertheless, possible outcomes of the college experience. In short, in all of our studies, we should not lose sight of the fact that educational interventions have a variety of consequences, and that unplanned for outcomes--including "side effects" of education--are necessarily part of the educational experience.

In our research, we begin with the assumption that there is no one method for effecting change in student behavior. We are, nevertheless, primarily concerned with examining how changes in student behavior come about. Thus, our focus is on the process of development and the identification and isolation of critical variables. We believe that extensive longitudinal research of a comprehensive nature is necessary in order to make finer distinctions among students and their college experiences which may be of use to institutions, guidance personnel, and instructors in mapping out a strategy of learning for their particular students. In short, we believe that a thorough knowledge about the student, his environment for learning, and his development during the college years, will help us to discover which educational objectives--implicit or explicit--are actually being achieved, and what can or cannot be done about them.

References

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Source of Criterion Measure:	Behavioral Domain: Cognitive	Affective
Hypothetical Construct	A Abilities Intelligence Aptitude Knowledge	B Self-Concept Need Achievement Values Attitudes
Observable Behavior	C Educational Attainment Vocational Choice Skills Achievements	D Avocation Interpersonal Relations Mental Health Citizenship

Figure 1. Scheme for classifying types of criteria on student development.